

sequence listing
SEQUENCE LISTING

<110> G2M Cancer Drugs AG

Forschungszentrum Karlsruhe GmbH

<120> The use of molecular markers for the preclinical and clinical profiling of inhibitors of enzymes having histone deacetylase activity

<130> molecular markers

<160> 8

<170> PatentIn version 3.1

<210> 1

<211> 488

<212> PRT

<213> homo sapiens

<400> 1

Met Ala Tyr Ser Gln Gly Gly Gly Lys Lys Lys Val Cys Tyr Tyr Tyr
1 5 10 15

Asp Gly Asp Ile Gly Asn Tyr Tyr Tyr Gly Gln Gly His Pro Met Lys
20 25 30

Pro His Arg Ile Arg Met Thr His Asn Leu Leu Leu Asn Tyr Gly Leu
35 40 45

Tyr Arg Lys Met Glu Ile Tyr Arg Pro His Lys Ala Thr Ala Glu Glu
50 55 60

Met Thr Lys Tyr His Ser Asp Glu Tyr Ile Lys Phe Leu Arg Ser Ile
65 70 75 80

Arg Pro Asp Asn Met Ser Glu Tyr Ser Lys Gln Met His Ile Phe Asn
85 90 95

Val Gly Glu Asp Cys Pro Ala Phe Asp Gly Leu Phe Glu Phe Cys Gln
100 105 110

Leu Ser Thr Gly Gly Ser Val Ala Gly Ala Val Lys Leu Asn Arg Gln
Page 1

sequence listing

115

120

125

Gln Thr Asp Met Ala Val Asn Trp Ala Gly Gly Leu His His Ala Lys
130 135 140

Lys Tyr Glu Ala Ser Gly Phe Cys Tyr Val Asn Asp Ile Val Leu Ala
145 150 155 160

Ile Leu Glu Leu Leu Lys Tyr His Gln Arg Val Leu Tyr Ile Asp Ile
165 170 175

Asp Ile His His Gly Asp Gly Val Glu Glu Ala Phe Tyr Thr Thr Asp
180 185 190

Arg Val Met Thr Val Ser Phe His Lys Tyr Gly Glu Tyr Phe Pro Gly
195 200 205

Thr Gly Asp Leu Arg Asp Ile Gly Ala Gly Lys Gly Lys Tyr Tyr Ala
210 215 220

Val Asn Phe Pro Met Cys Asp Gly Ile Asp Asp Glu Ser Tyr Gly Gln
225 230 235 240

Ile Phe Lys Pro Ile Ile Ser Lys Val Met Glu Met Tyr Gln Pro Ser
245 250 255

Ala Val Val Leu Gln Cys Gly Ala Asp Ser Leu Ser Gly Asp Arg Leu
260 265 270

Gly Cys Phe Asn Leu Thr Val Lys Gly His Ala Lys Cys Val Glu Val
275 280 285

Val Lys Thr Phe Asn Leu Pro Leu Leu Met Leu Gly Gly Gly Gly Tyr
290 295 300

Thr Ile Arg Asn Val Ala Arg Cys Trp Thr Tyr Glu Thr Ala Val Ala
305 310 315 320

Leu Asp Cys Glu Ile Pro Asn Glu Leu Pro Tyr Asn Asp Tyr Phe Glu
325 330 335

Tyr Phe Gly Pro Asp Phe Lys Leu His Ile Ser Pro Ser Asn Met Thr
340 345 350

Asn Gln Asn Thr Pro Glu Tyr Met Glu Lys Ile Lys Gln Arg Leu Phe
355 360 365

Glu Asn Leu Arg Met Leu Pro His Ala Pro Gly Val Gln Met Gln Ala
370 375 380

Ile Pro Glu Asp Ala Val His Glu Asp Ser Gly Asp Glu Asp Gly Glu
Page 2

sequence listing

385 390 395 400

Asp Pro Asp Lys Arg Ile Ser Ile Arg Ala Ser Asp Lys Arg Ile Ala
405 410 415

Cys Asp Glu Glu Phe Ser Asp Ser Glu Asp Glu Gly Glu Gly Gly Arg
420 425 430

Arg Asn Val Ala Asp His Lys Lys Gly Ala Lys Lys Ala Arg Ile Glu
435 440 445

Glu Asp Lys Lys Glu Thr Glu Asp Lys Lys Thr Asp Val Lys Glu Glu
450 455 460

Asp Lys Ser Lys Asp Asn Ser Gly Glu Lys Thr Asp Thr Lys Gly Thr
465 470 475 480

Lys Ser Glu Gln Leu Ser Asn Pro
485

<210> 2

<211> 183

<212> PRT

<213> homo sapiens

<400> 2

Met Ser Ser Pro Ser Pro Gly Lys Arg Arg Met Asp Thr Asp Val Val
1 5 10 15

Lys Leu Ile Glu Ser Lys His Glu Val Thr Ile Leu Gly Gly Leu Asn
20 25 30

Glu Phe Val Val Lys Phe Tyr Gly Pro Gln Gly Thr Pro Tyr Glu Gly
35 40 45

Gly Val Trp Lys Val Arg Val Asp Leu Pro Asp Lys Tyr Pro Phe Lys
50 55 60

Ser Pro Ser Ile Gly Phe Met Asn Lys Ile Phe His Pro Asn Ile Asp
65 70 75 80

Glu Ala Ser Gly Thr Val Cys Leu Asp Val Ile Asn Gln Thr Trp Thr
85 90 95

Ala Leu Tyr Asp Leu Thr Asn Ile Phe Glu Ser Phe Leu Pro Gln Leu
100 105 110

Leu Ala Tyr Pro Asn Pro Ile Asp Pro Leu Asn Gly Asp Ala Ala Ala
Page 3

sequence listing

115

120

125

Met Tyr Leu His Arg Pro Glu Glu Tyr Lys Gln Lys Ile Lys Glu Tyr
130 135 140

Ile Gln Lys Tyr Ala Thr Glu Glu Ala Leu Lys Glu Gln Glu Glu Gly
145 150 155 160

Thr Gly Asp Ser Ser Ser Glu Ser Ser Met Ser Asp Phe Ser Glu Asp
165 170 175

Glu Ala Gln Asp Met Glu Leu
180

<210> 3

<211> 624

<212> PRT

<213> homo sapiens

<400> 3

Met Glu Asn Ser Asp Ser Asn Asp Lys Gly Ser Gly Asp Gln Ser Ala
1 5 10 15

Ala Gln Arg Arg Ser Gln Met Asp Arg Leu Asp Arg Glu Glu Ala Phe
20 25 30

Tyr Gln Phe Val Asn Asn Leu Ser Glu Glu Asp Tyr Arg Leu Met Arg
35 40 45

Asp Asn Asn Leu Leu Gly Thr Pro Gly Glu Ser Thr Glu Glu Glu Leu
50 55 60

Leu Arg Arg Leu Gln Gln Ile Lys Glu Gly Pro Pro Pro Gln Asn Ser
65 70 75 80

Asp Glu Asn Arg Gly Gly Asp Ser Ser Asp Asp Val Ser Asn Gly Asp
85 90 95

Ser Ile Ile Asp Trp Leu Asn Ser Val Arg Gln Thr Gly Asn Thr Thr
100 105 110

Arg Ser Gly Gln Arg Gly Asn Gln Ser Trp Arg Ala Val Cys Arg Thr
115 120 125

Asn Pro Asn Ser Gly Asn Phe Arg Phe Ser Leu Glu Ile Asn Val Tyr
130 135 140

Ser Asn Asn Gly Ser Gln Asn Ser Glu Asn Glu Asn Glu Pro Ser Ala
Page 4

sequence listing

145		150		155		160
Arg	Arg	Ser	Ser	Gly	Glu	Asn
				165		Val
					Glu	Asn
					170	Asn
					Ser	Gln
					Arg	Gln
					175	Val
Glu	Asn	Pro	Arg	Ser	Glu	Ser
			180			Thr
					Ser	Ala
					185	Arg
					Pro	Ser
					Arg	190
					Ser	Glu
Arg	Asn	Ser	Thr	Glu	Ala	Leu
		195				Thr
					200	Glu
					Val	Pro
					Pro	Thr
					205	Arg
					Gly	Gln
Arg	Arg	Ala	Arg	Ser	Arg	Ser
		210				Pro
					215	Asp
					His	Arg
					Arg	220
					Thr	Arg
					Ala	Arg
Ala	Glu	Arg	Ser	Arg	Ser	Pro
225					230	Leu
					His	Pro
					Met	235
					Ser	Glu
					Ile	Pro
					Arg	240
Arg	Ser	His	His	Ser	Ile	Ser
				245		Ser
					Gln	Thr
					250	Phe
					Glu	His
					Pro	Leu
					255	Val
Asn	Glu	Thr	Glu	Gly	Ser	Ser
			260			Arg
					Thr	265
					Arg	His
					His	Val
					Thr	270
					Leu	Arg
Gln	Gln	Ile	Ser	Gly	Pro	Glu
		275				Leu
					280	Leu
					Ser	Arg
					Gly	Leu
					285	Phe
					Ala	Ala
Ser	Gly	Thr	Arg	Asn	Ala	Ser
	290				295	Gln
					Gly	Ala
					Gly	Ser
					300	Ser
					Asp	Thr
					Ala	
Ala	Ser	Gly	Glu	Ser	Thr	Gly
305					310	Ser
					Gly	Gln
					Arg	315
					Pro	Pro
					Thr	Ile
					Val	320
Leu	Asp	Leu	Gln	Val	Arg	Arg
			325			Val
					Arg	Pro
					330	Gly
					Glu	Tyr
					Arg	Gln
					335	Arg
Asp	Ser	Ile	Ala	Ser	Arg	Thr
			340			Arg
					345	Ser
					Arg	Ser
					Gln	Thr
					350	Pro
					Asn	Asn
Thr	Val	Thr	Tyr	Glu	Ser	Glu
		355				Arg
					360	Gly
					Gly	Phe
					Arg	Arg
					365	Thr
					Phe	Ser
Arg	Ser	Glu	Arg	Ala	Gly	Val
	370				375	Arg
					Thr	Tyr
					Val	Ser
					380	Thr
					Ile	Arg
					Ile	
Pro	Ile	Arg	Arg	Ile	Leu	Asn
385					390	Thr
					Gly	Leu
					Ser	395
					Glu	Thr
					Thr	Ser
					Val	400
Ala	Ile	Gln	Thr	Met	Leu	Arg
				405		Gln
					Ile	Met
					410	Thr
					Gly	Phe
					Gly	Glu
					415	Leu

sequence listing

420

425

430

Ser Asn Arg Asn Met Glu Arg Ala Glu Ser Arg Ser Gly Arg Gly Gly
435 440 445

Ser Gly Gly Gly Ser Ser Ser Gly Ser Ser Ser Ser Ser Ser Ser Ser
450 455 460

Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Pro Ser Ser Ser
465 470 475 480

Ser Gly Gly Glu Ser Ser Glu Thr Ser Ser Asp Leu Phe Glu Gly Ser
485 490 495

Asn Glu Gly Ser Ser Ser Ser Gly Ser Ser Gly Ala Arg Arg Glu Gly
500 505 510

Arg His Arg Ala Pro Val Thr Phe Asp Glu Ser Gly Ser Leu Pro Phe
515 520 525

Leu Ser Leu Ala Gln Phe Phe Leu Leu Asn Glu Asp Asp Asp Asp Gln
530 535 540

Pro Arg Gly Leu Thr Lys Glu Gln Ile Asp Asn Leu Ala Met Arg Ser
545 550 555 560

Phe Gly Glu Asn Asp Ala Leu Lys Thr Cys Ser Val Cys Ile Thr Glu
565 570 575

Tyr Thr Glu Gly Asn Lys Leu Arg Lys Leu Pro Cys Ser His Glu Tyr
580 585 590

His Val His Cys Ile Asp Arg Trp Leu Ser Glu Asn Ser Thr Cys Pro
595 600 605

Ile Cys Arg Arg Ala Val Leu Ala Ser Gly Asn Arg Glu Ser Val Val
610 615 620

<210> 4

<211> 281

<212> PRT

<213> homo sapiens

<400> 4

Met Ala Met Met Glu Val Gln Gly Gly Pro Ser Leu Gly Gln Thr Cys
1 5 10 15

Val Leu Ile Val Ile Phe Thr Val Leu Leu Gln Ser Leu Cys Val Ala
Page 6

sequence listing

20

25

30

Val Thr Tyr Val Tyr Phe Thr Asn Glu Leu Lys Gln Met Gln Asp Lys
35 40 45
Tyr Ser Lys Ser Gly Ile Ala Cys Phe Leu Lys Glu Asp Asp Ser Tyr
50 55 60
Trp Asp Pro Asn Asp Glu Glu Ser Met Asn Ser Pro Cys Trp Gln Val
65 70 75 80
Lys Trp Gln Leu Arg Gln Leu Val Arg Lys Met Ile Leu Arg Thr Ser
85 90 95
Glu Glu Thr Ile Ser Thr Val Gln Glu Lys Gln Gln Asn Ile Ser Pro
100 105 110
Leu Val Arg Glu Arg Gly Pro Gln Arg Val Ala Ala His Ile Thr Gly
115 120 125
Thr Arg Gly Arg Ser Asn Thr Leu Ser Ser Pro Asn Ser Lys Asn Glu
130 135 140
Lys Ala Leu Gly Arg Lys Ile Asn Ser Trp Glu Ser Ser Arg Ser Gly
145 150 155 160
His Ser Phe Leu Ser Asn Leu His Leu Arg Asn Gly Glu Leu Val Ile
165 170 175
His Glu Lys Gly Phe Tyr Tyr Ile Tyr Ser Gln Thr Tyr Phe Arg Phe
180 185 190
Gln Glu Glu Ile Lys Glu Asn Thr Lys Asn Asp Lys Gln Met Val Gln
195 200 205
Tyr Ile Tyr Lys Tyr Thr Ser Tyr Pro Asp Pro Ile Leu Leu Met Lys
210 215 220
Ser Ala Arg Asn Ser Cys Trp Ser Lys Asp Ala Glu Tyr Gly Leu Tyr
225 230 235 240
Ser Ile Tyr Gln Gly Gly Ile Phe Glu Leu Lys Glu Asn Asp Arg Ile
245 250 255
Phe Val Ser Val Thr Asn Glu His Leu Ile Asp Met Asp His Glu Ala
260 265 270
Ser Phe Phe Gly Ala Phe Leu Val Gly
275 280

<210> 5

sequence listing

<211> 1985

<212> DNA

<213> homo sapiens

```

<400> 5
cgccgagctt tcggcacctc tgccgggtgg taccgagcct tcccggcgcc ccctcctctc      60
ctcccaccgg cctgcccttc cccgcgggac tatcgccccc acgtttccct cagccctttt      120
ctctcccggc cgagccgcgg cggcagcagc agcagcagca gcagcaggag gaggagcccc      180
gtggcggcgg tggccgggga gcccatggcg tacagtcaag gaggcggcaa aaaaaaagtc      240
tgctactact acgacggtga tattggaaat tattattatg gacaggggtca tcccatgaag      300
cctcatagaa tccgcatgac ccataacttg ctgttaaatt atggcttata cagaaaaatg      360
gaaatatata ggccccataa agccactgcc gaagaaatga caaaatatca cagtgatgag      420
tatatcaaat ttctacggtc aataagacca gataacatgt ctgagtatag taagcagatg      480
catatattta atgttggaga agattgtcca gcgtttgatg gactctttga gttttgtcag      540
ctctcaactg gcggttcagt tgctggagct gtgaagttaa accgacaaca gactgatatg      600
gctgttaatt gggctggagg attacatcat gctaagaaat acgaagcatc aggattctgt      660
tacgttaatg atattgtgct tgccatcctt gaattactaa agtatcatca gagagtctta      720
tatattgata tagatattca tcatggtgat ggtgttgaag aagcttttta tacaacagat      780
cgtgtaatga cggtatcatt ccataaatat ggggaatact ttcctggcac aggagacttg      840
agggatattg gtgctggaaa aggcaaatac tatgctgtca attttccaat gtgtgatggg      900
atagatgatg agtcatatgg gcagatattt aagcctatta tctcaaaggt gatggagatg      960
tatcaaccta gtgctgtggg attacagtgt ggtgcagact cattatctgg tgatagactg     1020
ggttgtttca atctaacagt caaagggtcat gctaaatgtg tagaagttgt aaaaactttt     1080
aacttaccat tactgatgct tggaggaggg ggctacacaa tccgtaatgt tgctcgatgt     1140
tggacatatg agactgcagt tgcccttgat tgtgagattc ccaatgagtt gccatataat     1200
gattactttg agtattttgg accagacttc aaactgcata ttagtccttc aaacatgaca     1260
aaccagaaca ctccagaata tatggaaaag ataaaacagc gtttgtttga aaatttgctc     1320
atgttacctc atgcacctgg tgtccagatg caagctattc cagaagatgc tgttcatgaa     1380
gacagtggag atgaagatgg agaagatcca gacaagagaa tttctattcg agcatcagac     1440
aagcggatag cttgtgatga agaattctca gattctgagg atgaaggaga aggagggtcga     1500
agaaatgtgg ctgatcataa gaaaggagca aagaaagcta gaattgaaga agataagaaa     1560
gaaacagagg acaaaaaaac agacgttaag gaagaagata aatccaagga caacagtggg     1620
gaaaaaacag ataccaaagg aaccaaatac gaacagctca gcaacccttg aatttgacag     1680
tctcaccaat ttcagaaaat cattaaaaag aaaatattga aaggaaaatg ttttcttttt     1740

```


sequence listing

gaagacttct	ggcttcattt	tatactactt	tggcatggac	tgtattttatt	ttcaaattggg	1800
actttttcgt	ttttgttttt	ctgggcaagt	tttattgtga	gatttttctaa	ttatgaagca	1860
aaattttcttt	tctccacccat	gctttatgtg	atagtattta	aaattgatgt	gagttattat	1920
gtcaaaaaaa	ctgatctatt	aaagaagtaa	ttggcctttc	tgagctgaaa	aaaaaaaaaa	1980
aaaag						1985

<210> 6
 <211> 761
 <212> DNA
 <213> homo sapiens

<400> 6						
ccgggccgtg	acagacggcc	ggcagaggaa	gggagagagg	cggcggcgac	accatgtcat	60
ctcccagtc	gggcaagagg	cggatggaca	cggacgtggt	caagctcatc	gagagtaaac	120
atgaggttac	gatcctggga	ggacttaatg	aatttgtagt	gaagttttat	ggaccacaag	180
gaacaccata	tgaaggcgga	gtatggaaag	ttagagtggg	cctacctgat	aaataccctt	240
tcaaattctcc	atctatagga	ttcatgaata	aaattttcca	tccaacatt	gatgaagcgt	300
caggaactgt	gtgtctagat	gtaattaatc	aaacttggac	agctctctat	gatcttacca	360
atatatttga	gtccttcctg	cctcagttat	tggcctatcc	taaccccata	gatcctctca	420
atggtgacgc	tgcagccatg	tacctccacc	gaccagaaga	atacaagcag	aaaattaaag	480
agtacatcca	gaaatacgcc	acggaggagg	cgctgaaaga	acaggaagag	ggtaccgggg	540
acagctcatc	ggagagctct	atgtctgact	tttccgaaga	tgaggcccag	gatatggagt	600
tgtagtagaa	aaagcacctg	cttttcagaa	agactattat	ttcctaacca	tgagaagcag	660
actataatat	tcataatttaa	acaaagcaat	tttttttatt	actaaacaag	gtttttatga	720
ataatagcat	tgatatatat	atattatata	tcacccttta	g		761

<210> 7
 <211> 1875
 <212> DNA
 <213> homo sapiens

<400> 7						
atggaaaact	cagattccaa	tgacaaagga	agtggatgatc	agtctgcagc	acagcgcaga	60
agtcagatgg	accgattgga	tcgagaagaa	gctttctatc	aatttgtaaa	taacctgagt	120
gaagaagatt	ataggcttat	gagagataac	aatttgctag	gcaccccagg	tgaaagtact	180
gaggaagagt	tgctgagacg	actacagcaa	attaaagaag	gcccaccacc	gcaaaactca	240

sequence listing						
gatgaaaata	gaggaggaga	ctcttcagat	gatgtgtcta	atgggtgactc	tataatagac	300
tggcttaact	ctgtcagaca	aactggaaat	acaacaagaa	gtgggcaaag	aggaaaccaa	360
tcttggagag	cagtgtgccg	gactaatcca	aacagcggta	atttcagatt	cagtttagag	420
ataaatgttt	acagtaataa	tgggagccaa	aattcagaga	atgaaaatga	gccatctgca	480
agacgttcta	gtggagaaaa	tgtggaaaac	aacagccaaa	ggcaagtgga	aaaccacga	540
tctgaatcaa	catctgcaag	gccatctaga	tcagaacgaa	attcaactga	agcgttaaca	600
gaggtcccac	ctaccagagg	tcagaggagg	gcaagaagca	ggagcccaga	ccatcggaga	660
accagagcaa	gagctgaaag	aagtaggtca	cctctgcatc	caatgagtga	aattccacga	720
agatctcatc	atagtatctc	atctcagact	tttgaacatc	cttttgtaaa	tgagacggag	780
ggaagtctta	gaacccggca	ccatgtgaca	ttgaggcagc	aaatatctgg	gcctgagttg	840
ctaagtagag	gtctttttgc	agcttctgga	acaagaaatg	cttctcaagg	agcaggttct	900
tcagacacag	ctgccagtgg	tgaatctaca	ggatcaggac	agagacctcc	aaccatagtc	960
cttgatcttc	aagtaagaag	agttcgtcct	ggagaatatc	ggcagagaga	tagcatagcc	1020
agcagaactc	ggtctaggtc	tcagacacca	aacaacactg	tcacctatga	aagtgaacga	1080
ggaggtttta	ggcgtaacatt	ttcacgttct	gagcgggcag	gtgtgagaac	ctatgtcagt	1140
accatcagaa	ttcccattcg	tagaatctta	aatactgggt	taagtgagac	tacatctggt	1200
gcaattcaga	ccatgttaag	gcagataatg	acaggttttg	gtgagttaag	ctattttatg	1260
tacagtgata	gcgactcaga	gcctactggc	tcagtctcaa	atcgaaatat	ggaaagggca	1320
gagtcacgga	gtggaagagg	aggttctggt	ggtggtagta	gttctgggtc	cagttcgagt	1380
tccagttcca	gttcgagttc	cagttccagt	tcaagttcca	gttccagtcc	tagttccagt	1440
tccggtggtg	aaagttcaga	aactagctca	gatttatttg	aaggcagtaa	tgaaggaagc	1500
tcatcatcag	gctcatcagg	tgccaggcga	gagggctcgac	atagggcccc	agtcacattt	1560
gatgaaagtg	gctctttgcc	cttccttagc	ctggctcagt	ttttcctctt	aatgagggat	1620
gatgatgacc	aacctagagg	actcaccaa	gaacagattg	acaacttggc	aatgagaagt	1680
tttggtgaaa	atgatgcatt	aaaaacctgt	agtgtttgca	ttacagaata	tacagaaggc	1740
aacaaacttc	gtaaactacc	ttgttcccat	gagtaccatg	tccactgcat	cgatcgctgg	1800
ttatctgaga	attctacctg	tcctatttgt	cgcagagcag	tcttagcttc	tggtaacaga	1860
gaaagtgttg	tgtaa					1875

<210> 8

<211> 1769

<212> DNA

<213> homo sapiens

<400> 8

sequence listing						
cctcactgac	tataaaagaa	tagagaagga	agggcttcag	tgaccggctg	cctggctgac	60
ttacagcagt	cagactctga	caggatcatg	gctatgatgg	aggtccaggg	gggacccagc	120
ctgggacaga	cctgctgtct	gatcgtgatc	ttcacagtgc	tcctgcagtc	tctctgtgtg	180
gctgtaactt	acgtgtactt	taccaacgag	ctgaagcaga	tgcaggacaa	gtactccaaa	240
agtggcattg	cttgtttctt	aaaagaagat	gacagttatt	gggaccccaa	tgacgaagag	300
agtatgaaca	gcccctgctg	gcaagtcaag	tggcaactcc	gtcagctcgt	tagaaagatg	360
atthttgagaa	cctctgagga	aaccatttct	acagttcaag	aaaagcaaca	aaatatttct	420
cccctagtga	gagaaaagagg	tcctcagaga	gtagcagctc	acataactgg	gaccagagga	480
agaagcaaca	cattgtcttc	tccaaactcc	aagaatgaaa	aggctctggg	ccgcaaaata	540
aactcctggg	aatcatcaag	gagtgggcat	tcattcctga	gcaacttgca	cttgaggaat	600
ggtgaactgg	tcatccatga	aaaagggttt	tactacatct	attcccaaac	atactttcga	660
tttcaggagg	aaataaaaaga	aaacacaaag	aacgacaaac	aatgggtcca	atatatttac	720
aaatacacaa	gttatcctga	ccctatatgg	ttgatgaaaa	gtgctagaaa	tagttgttgg	780
tctaaagatg	cagaatatgg	actctattcc	atctatcaag	ggggaatatt	tgagcttaag	840
gaaaatgaca	gaatttttgt	ttctgtaaca	aatgagcact	tgatagacat	ggaccatgaa	900
gccagttttt	tcggggcctt	tttagttggc	taactgacct	ggaaagaaaa	agcaataacc	960
tcaaagtgac	tattcagttt	tcaggatgat	acactatgaa	gatgtttcaa	aaaatctgac	1020
caaaacaaac	aaacagaaaa	cagaaaacaa	aaaaacctct	atgcaatctg	agtagagcag	1080
ccacaaccaa	aaaattctac	aacacacact	gttctgaaag	tgactcactt	atcccaagaa	1140
aatgaaattg	ctgaaagatc	tttcaggact	ctacctcata	tcagtttgct	agcagaaatc	1200
tagaagactg	tcagcttcca	aacattaatg	caatgggttaa	catcttctgt	ctttataatc	1260
tactccttgt	aaagactgta	gaagaaagcg	caacaatcca	tctctcaagt	agtgtatcac	1320
agtagtagcc	tccaggtttc	cttaagggac	aacatcctta	agtcaaaaaga	gagaagaggc	1380
accactaaaa	gatcgcagtt	tgcttggtgc	agtggctcac	acctgtaatc	ccaacatttt	1440
gggaacccaa	ggtgggtaga	tcacgagatc	aagagatcaa	gaccatagtg	accaacatag	1500
tgaaacccca	tctctactga	aagtgcaaaa	attagctggg	tgtgttgga	catgcctgta	1560
gtcccagcta	cttgagaggc	tgaggcagga	gaatcgtttg	aaccggggag	gcagagggtg	1620
cagtgtggtg	agatcatgcc	actacactcc	agcctggcga	cagagcgaga	cttggtttca	1680
aaaaaaaaaa	aaaaaaaaaa	cttcagtaag	tacgtgttat	ttttttcaat	aaaattctat	1740
tacagtatgt	caaaaaaaaa	aaaaaaaaaa				1760